NYSERDA'S 130TH PROGRAM PLANNING COMMITTEE MEETING
April 29, 2026
Clean Copy of Transcript

Charles Bell:
Good afternoon and welcome. I call this meeting to order. A notice and agenda for this meeting was provided to the Committee members in press on April 17, 2026, and a revised agenda was issued on April 28, 2026. This meeting is being conducted in person and by video conference. The Authority will post a video and a transcript of this meeting on the web. To confirm that we have a quorum, I would like each of the Committee members to please introduce themselves. I am Chuck Bell, Acting Chair of the Authority. Shere Abbott, the Committee's Chair, was unable to attend today, and therefore I will be leading this meeting. Lindsay?

Lindsay Greene:
Oh, Lindsay Green, a Member of the Authority and Member of the Committee.

Jay Koh:
Jay Koh, Member of the Board. And Member of the Committee. Sorry.

Dale Bryk:
Dale Bryk, Member of the Committee and Member of the Board.

Jen Hensley:
I'm Jen Hensley, Member of the Committee Member of the Board.

Charles Bell:
Thank you very much. The first item on the agenda is the approval of the minutes of the 129th Committee meeting held on October 22nd, 2025. Are there any comments on the minutes? May I please have a motion approving the minutes?

Jay Koh:
So moved.

Dale Bryk:
Second.

Charles Bell:
All in favor, please.

Members of the Committee:
Aye.

Charles Bell:
Any opposed? The minutes have been approved. The next item on the agenda is a status report on several of the Authority's programs. This item will be presented by the Authority's Chief Program Officer, Anthony Fiore, with the assistance of various program staff. Anthony?

Anthony Fiore:
Thank you. Good afternoon. Welcome to Committee members. The Committee. We're going to today by our presentation parts. We're going to begin by summarizing some important recent analytical and research activities. Specifically, Brandon Owens, our Vice President for Innovation will present on NYSERDA's latest grid modeling work. And while much of our grid modeling work is intertwined with the DPS initiated grid of the future proceeding, our efforts to model future grid conditions and needs originated before that proceeding will extend much beyond it. After that, Nick Patane, our Associate Director of Policy Analysis, will present the State's current and future energy mix. That work builds on findings from the zero by 40 technoeconomic assessment, including the dispatchable emission-free resources that that assessment identifies.

Then we're going to move in and highlight some select market development programs where NYSERDA is working either to launch new programs or significantly expand existing programs in response to market needs. Susanne DesRoches, our Vice President for Clean and Resilient Building will present on the strategy timeline and market barriers being addressed, as well as key success factors. For two programs in the building sector, our AMP Up Program and the Empire Building Challenge. And then after that, Andrew Kessler, our President of the NY Green Bank will provide an executive summary of the Green Bank's progress and accomplishments over the past fiscal year. And then Andrew will also lay out some strategic changes that Green Bank is making for the period between fiscal year 26 and 30 to better serve New York State's market for energy transition projects. And just before we turn to the specific projects, I just wanted to highlight the connection between our research and analytical work and programs.

Fundamentally, NYSERDA does three types of work. We provide decision useful information to the market and the public. We guide and develop policy for the energy transition. And then we directly run programs to benefit a wide range of New York residents and customers. And those three types of work are mutually reinforcing to one another. Our analytical and research work is central to our creation of decision useful information. We use this information to guide policy interventions and programs. And so for example, the information from our grid modeling work is guiding our portfolio of grid programs.

Likewise, our prior building modeling informed our development of the new AMP Up Program. In turn, our policy development and program delivery work inform our research and analytic work. Both policy and program work yield further market insights and tell us where further analysis and research are needed. So I just want to highlight that connectivity between policy and planning and programmatic interventions in the market. And with that, I invite Brandon up to.

Brandon Owens:
Everyone, good afternoon. Good afternoon. All right. Let's dive into the grid modeling work. A lot of the work, as Anthony said, is focused on the future proceeding that PSD initiated in April 2024. This going to lead to an order likely early next year, but we also have a couple other efforts around grid modeling. One is our partnership with NYPA's Agile Lab, which is the development of a highly granular model of the New York power system. So that's on an ongoing effort. The other piece is we have a model development effort in collaboration with National Energy Lab, which is basically the development of a jointly optimized transmission and

distribution modeling system, something that hasn't been done before, which is going to allow us to get better results in the modeling that we do around grid. So let's talk about the future a little bit. So the city was initiated in April 2024. It's really divided into four phases.

The goal here is to determine how to unlock innovation investment around flexible resources. So these are distributed energy resources, but also virtual power plants. So the first step was really to kind of figure out what the size of the price is, how much flexible resource is out there at a economic level, and then we can design a plant and go after it. So that was phase one. We completed that work, filed that January 2025. Phase two was about understanding the individual DSIPs submitted by the utilities. These are the distributed energy location plans and synchronizing those and organizing those. Those were being filed by the utilities, but there was no uniform standard for those. And so it was really an organization effort to understand what are the current utility plans around distributed energy employment. We conducted that work and filed that report March 31, 2025. We're now onto phase three, which is about putting those pieces together, the initial assessment of the resource of flexibility that's available in the State of New York, the utility implementation plans.

We're bringing those two pieces together to develop a roadmap to actually tap those resources and maximize reflexibility in New York. We're going to be done with that work by the end of this year that will be filed, and that's going to be to the order in 27th. The other piece of this is ongoing simulation using the agile lab framework to model the roadmap, to see what kind of results we're getting, and to course correct as appropriate, as we implement strategies to enhance grid flexibility. So that's the broader framework. Does that make sense? Any questions around that?

So I'm going to dive into some of the results a little bit. This is from the phase one modeling. So what we're trying to do here is ... What we're trying to do here is understand the extent of the flexible resources that are available in the State of New York. We did this through 2040 by looking at all of the individual resources that we can bring to the table, doing an economic evaluation and modeling those in the context of the integrated modeling system. This is one of those boil the ocean studies and it took place over a year. These are the options that we modeled within the framework, and the goal is to see how these perform and what kind of capability we actually have to enhance flexibility in the state.

Next slide, please. So these are the results of the study. This is, as I said, besides the prize, this is how much flexibility is actually available in State as an output from the modeling exercise. You can see that over time, the size of that flexibility is growing. This is for summer and winter peak, but it tells us that there's basically over eight gigawatts of cost effective flexibility in the New York system by 24. So that's the flexible resource that's available, cost effective. Now the challenge is how to figure out how to deploy that and to align utility statement plans in a way that's going to unlock that capability.

Jay Koh:
So just to double click on that for a second, these are the potential existing sources of flexible tower on the grid. Is there a requirement to make additional either CapEx investments here or to

create specific new contractual arrangements that would be required to actually access this amount of flexible capacity?

Brandon Owens:
There are some implementation costs associated with that. These would be administration, but also the grid management system. That's a good segue into the next page.

Anthony Fiore:
So there are other things also is market design, right? How do we incentivize put into these types of resources? That would be part of the roadmap. Okay.

Brandon Owens:
There are costs and there also are barriers to implementation. If the barriers exist, then this would be, if it's economically advantageous, this would just be a current. So for us, it's a matter of understanding the size of the potential and figuring out how to develop a plan that can overcome this. So when you have flexible resources like we do in the state, next slide please. The result is if you're able to deploy those, you're deferring investment through the use of those flexible resources, you're deferring transmission investment, you're deferring distribution system investment, and you're deferring generation capacity investment. So there's a lot of costs, including a lot of benefits associated with these flexible resources in terms of deployed, or excuse me, deferred system investment. Now there is a cost to implementation, as I mentioned, through DERMS system and administrative overhead, but the net benefit is extraordinary.

So you can see on the right side, the net benefits of the system, three billion, 2.9 billion annually, and power system benefits net if we're able to unlock these resources. So there's a strong economic case for making the grid more place.

Jay Koh:
But there's no expectation this affects actual aggregate demand at all. So assuming the same demand scenario, right? How are we supplying that demand? So in terms of like our CLCPA goals, it's neutral if we do this versus ... But with the flip side is, this is as usual would cost us another $2.9 billion in CapEx and other costs that we could defer.

Brandon Owens:
Yes. You're adjusting essentially peak at various times, so you don't have to build out a lot of the. Okay. So that's the results of phase one. Phase two is about utility DSIPs. And here it involved a review of all the plans, a synchronization and carbonization standardization of all those plans so that we can have a clear picture of what the current strategy is. That work was completed in March 2025. Okay. The deliverable here was just a matrix and an understanding of the capabilities of the utilities and the current implementation plans. So that's a segue into phase three, which is really about bringing all of those pieces together in the total State potential, their current utility implementation plans to develop a roadmap to fully tap the very flexible potential. And the approach here is to identify five domains and understand the capabilities within the domains. The domains that we're looking at are electrical, digital, regulatory, commercial, and customer domains.

And there's capabilities in each of these, that's the framework that's being applied. And the goal is to develop a roadmap that up levels the capabilities in each of these domains so that we can eliminate the barriers and achieve the full potential of the flexible options for the state. So what we're going to get here at the end of phase two is a roadmap, key output for the plan for achieving these capabilities that's going to be followed by the end of the year that's going to inform the phase three. This is phase three, correct.

So that's the work that's ongoing right now. The team is in the midst of doing this work and we've made actual progress. And as I said, we're going to continue to progress with the expectation that we will complete this file by year end. Next slide, please. Okay. So again, after phase three is complete, follow that by year end. And then there's an ongoing phase four, which is the simulation of these and implementation of these plans going forward using the Agile Live lab resource. So we'll quickly move into phase four and leverage the Agile framework, Agile framework to understand the progress and model the progress in course correct as we move forward to implement the very future plans. So that's the overall framework that shows some of the results in terms of what we're trying to achieve, the size of the resource that we believe we can go after, and the structure for developing a roadmap to get there.

Any questions about this overall initiative or any of the numbers or information that I've presented?

Charles Bell:
Yes.

Dale Bryk:
Can you just give us some examples of the kinds of things that you're seeing as potential recommendations of like, in order to capture all that value, we should do these three big things. Or I'm sure it's like 47 things, but just to have some granular flavor.

Brandon Owens:
Yeah. Well, I mentioned the best way to think of that is in terms of the barriers right now to deployment. And so there's technology and policy recommendations that are falling out across those barriers. So I think there's permitting processes, which can be a barrier. Oftentimes utilities, the grid planners are not sufficiently considering all the DER options. And so that sort of planning visibility is a barrier that needs to be addressed or a parts of the regulatory process that can slow the process. There's a slow and costly interconnection processes associated with these. And so we're going to have recommendations around that. And then there's difficulty in monitoring the effectiveness of these solutions once they're in the marketplace. And so there's going to be solutions around how do we extract the full value of great flexibility. So there's going to be a range of recognitions that fall out that really sort of wind up to all of the challenges that we see right now problems.

Anthony Fiore:
And if you look at the five domains, it's basically what are the changes that are needed each of those domains to capture this. And I mentioned rate design I think is one of those, but customer behavior is another concrete.

Lindsay Greene:
Well, I assume that's the majority of the HVAC, right? It's just thermostats it's not just, but-

Anthony Fiore:
It's

Lindsay Greene:
a lot of it.

Anthony Fiore:
It's in some instances giving up control, right?

Dale Bryk:
Right, right. So is it like a demand response program that would, you'd have to tackle those things to make the program function and maybe we have one, but it's only getting this and it should be getting this because of all those problems, but the end result would be help individual customers give up control so you could capture that. That's right.

Brandon Owens:
Okay. Thank you.

Jay Koh:
Thank you very much.

Anthony Fiore:
Thank you. Nick's going to present on the energy mix and material.

Nick Patane:
Hi everybody. Good to be here with you. I'm Vice President for Policy Analysis at NYSERDA. Today I'll be walking through our Zero by 40 Technoeconomic Assessment. Next slide please. Okay. So Zero by 40 Technoeconomic Assessment was published in September. We partnered with EPRI to conduct an analysis of essentially seven different candidate dispatchable emission-free resources or beavers. The 2040 zero emission grid mix will require a diverse set of resources. So in addition to zero emission energy, a lot of which will come from renewables today, as well as transmission and short duration storage, the grid is also going to need resources that can provide firm power even under the most challenging grid conditions. So these resources have very long duration, dependable fuels, fast ramping, and more. And these <inaudible> are essentially the focus of this report. So the report evaluates deeper technologies across key criteria, including performance, readiness, costs, emissions, safety, and other factors.

And the research can support the PSC Zero by 40 proceeding, which is ongoing. So while this reefing can't possibly cover all the nuances of the over 450 page body of research, I've tried to extract what I think top blind findings real today. Next slide.

All right. So there's seven candidate resources that we looked at. These include hydrogen, biofuels, advanced nuclear carbon capture and storage, next gen geothermal, longer energy

storage, and then virtual power plants. In recognition of the fact that these different technologies all bring different kinds of value to the grid, they're grouped into three different buckets based on their key performance and economic attributes. So the first category is what we call low capacity factor resources. These are highly responsive, but best deployed in a limited way, reserved only during times of peak system need to maintain reliability. These are the types of resources that can provide the sort of value, the figure on the right, sort of in green on those peak events. The second bucket are our high capacity factor resources. These are best deployed as base load resources due to limited flexibility and plant economics. These are providing value as sort of that yellow bar that's steady on the bottom and the figure on the right.

So in addition to providing peak capacity, they're also well suited as zero emission energy resources to supplement renewables and help you low growth. And then the third category is what we call gap right sizing resources. They don't produce new electricity on their own, but play a critical role in balancing supply and demand as shown in the shift in energy in blue between that sort of peak and valley and the figure on the right. It's inherently duration limited, but can help minimize the need for other defers. So for the next three slides, we'll touch on each of these technologies in more detail. Next slide.

So our first category is what we call low capacity factor resources. So due to their high responsiveness, these resources are expected to be needed statewide to meet reliability needs during extreme events. Regardless of fuel, the cost per unit of power is very high for these technologies and their fuel availability constraints. So care must be taken to avoid overreliance on energy from these resources. We'll kick off with hydrogen. Hydrogen's an energy carrier with no carbon. Hydrogen can be produced in a lot of different ways, and in our report we focused on two different ways. The first is green hydrogen made by the electrosis of water using clean electricity. And second is blue hydrogen, which is made from steam reformation and natural gas with carbon capture to mitigate emissions. Hydrogen has two major advantages. First, green hydrogen does not produce any GHGs. And second, hydrogen can store energy seasonally, which can help reduce renewables for town.

However, hydrogen faces major challenges that were discussed in the report. The most substantial barrier for hydrogen is its incompatibility with the existing natural gas transport and storage infrastructure due to its low energy density and ability to leak through metal pipes. New transport and storage infrastructure that we required to support the volume of hydrogen that will be needed, especially downstate, is both logistically and financially daunting. This infrastructure need ties into hydrogen's second major challenge, which is high and uncertain costs estimated to be about 20 times higher than that of natural gas. Finally, green hydrogen would add electricity demands already growing load that further challenges the build out of other renewables.

This is exacerbated by hydrogen's low electron to hydrogen back to electron round trip efficiency, which maxes out at about 25% representing significant energy losses. Overall, report finds that hydrogen's high cost and infrastructure barriers make it an unlikely statewide solution by P40. Click ahead one, please. Okay. So the next candidate resource is biofuels. Renewable natural gas and renewable diesel are biofuels that can be produced in various waste-based resources such as landfills, food waste, wastewater, and agricultural waste. These are drop-in replacements for conventional natural gas diesel, which is a major advantage over hydrogen

because they can leverage existing transport and storage infrastructure, as well as its existing plants without retrofit. As a result, biofuels face fewer cost barriers than hydrogen, but they're still expected to be more expensive than their fossil counterparts. Biofuel space challenges that will require prompt action to address in order to unlock them at scale.

Feed stocks to produce these fuels are limited and dispersed across the state, which requires mechanisms for aggregation that do not yet exist here. Additionally, while biofuels are considered net zero emissions and can reduce emissions in the competitors, they do have gross GHGs and focal emissions when they're consumed. Overall, the report finds that biofuels are well suited to meeting statewide reliability needs on the heart of states, but supply limitation emissions require strategic use. Next slide, please.

Okay. So the next bucket of resources is the high capacity factor resources. These are critical for meeting existing and growing loads and avoiding the niche relies exclusively on intermittent renewables and high cost peaking units. However, they face long lead times, siding constraints and infrastructure challenges. They're not expected to be available in all zones throughout the state. We'll start with advanced nuclear. Advanced ocular efficient produces energy from the splitting of uranium atoms, and the report includes three kinds of reactors, large light water reactors, light water, small modular reactors, and non-water cooled reactors. Nuclear has several key advantages. It produces zero greenhouse gases or coal glutens. It's also a varied energy gas and requires much less land for megawatt hour than other energy technologies. Finally, its job density and robust supply chain needs to create more workforce and economic development opportunities than any other defer. However, nuclear plants are massive and complex construction projects that face long and uncertain lead times, estimated as upwards of 10 years, and high and uncertain capital costs, which have resulted in significant costs overruns on recent projects.

The uncertainties will only be resolved with the establishment of robust project pipeline to maximize learning. Safety and waste management are critical considerations that will require careful planning and management. However, waste has been successfully managed onsite for decades and advanced reactors introducing safety concepts that lower the risk relative to conventional reactors. Overall, nuclear is a mature, reliable energy dense, zero emission solution, but it will require early and strategic action to achieve 2040 deployments. The nuclear master plan, which is underway, and the Governor's five gigawatt announcements are great steps toward this coal. Okay, please.

The next candidate is carbon capture, which captures carbon from the exhaustive plants that combust fuel for generation. Point source and mean-based capture technologies are already commercially deployed on coal plants and are being demonstrated on natural gas plants today. However, current deployments in the US have a history of underperformance and CO2 produce has most commonly been used for enhanced oil recovery, which is limited applicability in New York. Carbon capture on natural gas plants could be lower cost than other high capacity factor defers and can take advantage of existing generation sites. However, CCS would be expected to double the land footprint of an existing plant, which limits its applicability. Carbon capture faces similar transported storage challenges as hydrogen. We all uncertainly require a pipeline to transport the CO2 and storage resources in New York are limited and not yet technically ready.

Additionally, while technologies do mitigate combustion emissions, they do not mitigate the upstream emissions associated with natural gas extraction and require increased fuel during operations.

We estimate in the report that emission reductions would be only around 50% relative to uninvated natural gas generation, even with very high rates of capture. Overall, CCS on natural gas plants can be lower cost than other high capacity factor resources, and carbon transportation and storage infrastructure may be needed to help decarbonize other sectors of the economy, but it faces significant infrastructure and emission barriers. One more quick, please.

And then the final high capacity factor resources is next gen geothermal, which takes advantage of high temperatures underground to generate electricity. While conventional geothermal is not available to New York due to our geology, next gen geothermal technologies such as enhanced or closedly geothermal engineer the conditions to make geothermal technically feasible. The advantage of geothermal is that it's learning very quickly through oil and gas industry, which is reducing drilling costs at an unprecedented rate, achieving rates as high as 50%. However, New York's geology is not favorable towards even next gen geothermal. The report estimates that depth of up to eight kilometers may be required to reach the temperatures needed for power generation, whereas a typical project in the western United States only requires depths of around two to three kilometers. Overall, the report suggests that geothermal is not yet ready for New York, but the industry's learning fast and may be ready for New York soon, so we should keep our eye on the space as it develops. Next slide.

Our final bucket of resources of again, right sizing resources, these have avoided infrastructure and energy balancing value and can be deployed today to minimize the need to build more expensive solutions. However, they're inherently limited in duration so they're not enough by themselves to meet all grid needs. The first resource is long duration energy storage or LDES, which the report defines as technologies that could achieve durations of 10 hours or longer. The report covers 18 different LDES technologies that broadly fall into three categories: electrochemical, which includes various battery chemistries, a chemical which stores energy using physical means, and thermal that store the energy is heat. LDES has advantages that make it beneficial to pursue it even in the near term, provide critical balancing of supply and demand and reduce curtailment. These projects are more modular than traditional power plants, which create siding advantages in shorter lead times.

Additionally, aside strategically, LDES can reduce the need to upgrade transmission or rely on other peaking plants. One challenge lies simply with the number of LDES technologies that create unique sighting and safety considerations. On New York's leader and battery safety, LDES introduces new technologies that will require additional regulatory efforts. Finally, the current market structure does incentivize long duration storage capacity, which leads to challenges competing with lower cost, short duration storage. Overall, LDES could provide avoided infrastructure resilience benefits today, but market barriers, competition with short duration storage, and downstream siting uncertainties need to be resolved. And then finally, we have virtual power plants with Brandon so kindly keyed up for us. So we can go quickly through this one. VPPs are demand side solutions that act as aggregators of smaller scale DERs like storage EVs and HVAC equipment to reduce their ship loads during critical times at scale.

VPPs are lower cost than other DP technologies because they rely on DERs that are already being adopted. By compensating users, they can even lower the cost to consumers of adopting those technologies. They can be cited anywhere in the State and are deployed with shorter lead times than any other technologies. However, as granted nicely teed up, VPPs potential are determined by the percentage of DERs that opt into participating in VP programs, which creates coordination and incentivization challenges. Additionally, there are some technology improvements needed to enable improve real-time data streaming and verification of services. The port suggests that VBPs are one of the least costs and easiest solutions, and they should be deployed today to lower overall system costs, but their potential depends on DER adoption and opt-in participation. Next slide, please. All right. So to wrap up, the report outlines several lower grants actions that can help these technologies to achieve scale.

I won't read them all, but starting early and pursuing a mix of solutions will be key. All right. Any questions?

Charles Bell:
Are there questions?

Jay Koh:
I have one, maybe two. It's a great overview of the different types of options that get us potentially toolkit to get to 2040 objectives. Is there additional work that's going to be done around how to cost or budget these things and what the optimal mix sense of looking like? It's a moving target, but the modeling for that might be important.

Nick Patane:
For sure. Yeah. Thanks for the question. So definitely this is an extremely fluid space. I think we're doing a research over about 18 months and we're constantly needing to refresh our assumption and analysis because new projects are happening. Incentives, which is a major driver for a lot of these things, we start out was completely upended. New projects are announced. So definitely something that required not knowing analysis. One of the things that we were able to do, which was really great, was we were able to put some of these technologies into our State energy plan modeling and sort of see how some of these costs led to different resource mixes. And that's something that we're planning to do as well to sort of continue to evaluate the cost performance of these technologies, integrate them into the sort of energy system modeling and see what that does to the resource mix under different assumption sets.

It's definitely a space where you have to model a lot of different scenarios and sensitivities, figure out what the common themes are, common infrastructure, investments and things like that. And then I'll just make a blog because Brandon is going to continue the research on the UP cost dynamics. We've got ongoing work in the nuclear master plan that's going to refine those assumptions. So it is definitely a piece of work that we'll live on.

Jay Koh:
Helpful. Second question I have is years ago, I think at the Board level, we used to track and report to the Board just to

Explain where we were on the thermometer of how do we get to 2030, 2040 objectives, especially when we added the 2040 objectives under the previous Governor. And there were components of it. There's obviously energy efficiency that was going to drive down energy demand. We may see reversal of that now. A major component was offshore wind. That is obviously subject to some question. The trajectory and all these technologies should be part of the kind of blocks that get us to thermometer blocks of great analogy to get us to the goal. I think it would be useful in the Program Planning context to understand how the different programmatic activities we're doing at NYSERDA help to give more shape to or size to or cost to how we get to the overall set of goals. And there's multiple goals we have with obviously integrated approaches that the PDC is now directing us to do, transformational strategies, but also CLCPA and other things that we've done.

I think it would just be useful to understand that and the context of this kind of work and how it contributes to the big picture of that. And

Doreen Harris:
We share that we're still committed to that periodic reporting. In fact, I think you've slotted ... John, you can help me. Is that in our next meeting we're hoping? Yeah, that's where we're planning to cover that topic.

Jay Koh:
Great. It's helpful to contextualize these things here.

Doreen Harris:
In that ... Yep. I agree.

Anthony Fiore:
We're going to turn to the market development portion of this.

Susanne DesRoches:
Everybody show to the next slide.

Susanne DesRoches:
Oh you want to. All right. Here we go. So I'm going to talk through two programs today, the Affordable Multifamily Program Upstate, otherwise known as AMP Up and the Empire Tech Prize. So we can go to the next slide, Ralph. Great photos here. We launched AMP Up on the 16th of April. The Governor joined us for an event at the Albany Housing Association. This program has really a number of different goals. The first and most primary goal is that we provide energy affordability for our low and moderate income residents that live in multifamily buildings upstate. We do this through providing an energy first approach, energy efficiency first approach and electrification when that makes sense from a financial perspective. It really provides a one-stop shop for building owners and other participants. We do technical assistance for the building. We do design support. We provide construction incentives. And an overlay to that is a new product that is a concierge service.

And what this will do at no cost to building owners is really help them navigate the entire process from the initial scoping of a project all the way through commissioning. It'll be one person that the building owner can really rely on to help them navigate the program. So from 2026 through 2030, we expect to serve over 24,000 low and moderate income households, and that is about 1800 multifamily buildings throughout the upstate area. So the program is really designed for a number of different market barriers. And there has been in the past limited contractor interest in this state, a lack of technical support and high upfront costs. So those three things we've taken into consideration when designing this program. Also, the existing condition of this building stock is not great. So many of the buildings will need health and safety work before we move into energy efficiency, and then if they're ready to be affordably electrified.

So all those market barriers certainly have been taken into consideration in this program design.

Anthony Fiore:
I Think the concierge service part of this is unique in programming and really we see in past programs where people just drop out because it gets controlled. And so having that concierge service to help a customer through the entire lifecycle program, I think is really, really important.

Susanne DesRoches:
We heard that a lot from stakeholders.

Dale Bryk:
Well, just to clarify, so are the resources supporting the health and safety investments to get that obstacle out of the way so then those buildings can participate?

Susanne DesRoches:
Yeah. So the EE/BE Order from the PSC does provide us some flexibility around health and safety upgrades. So we will have funding available for that, a certain percentage of funding available for that. Now, there will be limitations to that. I mean, obviously if a building is structurally unsound, that's not going to be something that our incentives can cover, but smaller things are going to be eligible for the program. One other piece that I forgot to mention, Jay, before you got to the question, is that the programs will incorporate resiliency.

Jay Koh:
I have to ask about the second word there.

Susanne DesRoches:
And so we are doing this, the building will ... This is somewhat of a pilot for us. When the building comes in with the scope, they'll meet with resiliency experts. They will help navigate what can be incorporated. So if the building is in the floodplain and we are doing a heating upgrade, that gets flood protected. If there are roof upgrades or other upgrades that can be protected in nature, that's eligible as part of the scope.

Jay Koh:
That's great. That was obviously going to be my question. So I'm going to ask a follow-up question, which is, and I'd strongly encourage you to track the data around what interventions are

being done in the resilience context, and particularly to see some quantification methodology. The biggest silent killer in the climate context is heat deaths. We are going to see way more of them going forward, unfortunately, planet-wide. I don't know what the penetration rates on HVAC are at New York State. I think they're better than a lot of other places. We're going to see all kinds of other events, and it would be very interesting and useful to be able to begin to correlate the kind of resilience investments we're making with hopefully lower rates of impact on the populations, particularly low and moderate income populations, which are the most vulnerable from a whole variety of standpoints.

But I'm glad that there is a resilience component to this concierge package, and I also think it'd be great if we could really track that, particularly as for the agency of recording and adaptation plan of the state. Great.

Unknown Speaker:
Should I add?

Lindsay Greene:
I assume this talks a lot about heat drops and HVAC technologies. Does it also include smarter electric water meters and does it talk at all about building level battery systems to help some of the things that we were talking about a couple minutes ago?

Susanne DesRoches:
Right. That's a very good question. We are certainly doing building controls as part of these incentives. We are exploring solar and storage as an add-on capacity.

We needed to launch this program at the beginning of this year, so we certainly anticipate that there will be changes over time, and we're going to learn a lot also. Again, the concierge service is new. We have not provided that before, so we anticipate that as we build more of a pipeline, there are going to be adjustments that we make over time. Thank you. Yep. So next slide. I'll go relatively quickly through the slides. So this is just to show here, NYSERDA has been working in the multifamily space for a long time. We've launched Multifamily Performance program in 2007, so almost 20 years ago. And that was complemented in 2021 by the utilities launching the Affordable Multifamily Energy Efficiency program, otherwise known as AMEEP. We've progressed from having these multiple programs to, with the EE/BE Order, NYSERDA really becoming that sole provider for upstate multifamily, low and moderate income.

And this is really anything more upon is territory. And so we've spent the last two years out talking to stakeholders, working with affordable housing providers to help us design the program. And we see to see the key success factors really as integrating those learnings from the multifamily performance program. We saw a 20% average energy saving from that program, so we know how to do that. We're integrating that concierge service, so we make that one-stop shop and building our strong partnerships us and the hubs to provide folks to the program, but also to expand our contractor network. So that's what I have for AMP Up. Any other questions before I move on to Empire?

Jay Koh:
Same comment as before. It'd be useful to understand how the context of our housing interventions fit into the big picture of how do we get to the finish line here and then eventually think through how we resource these differences. This is enabling capacity, but housing is a massive component of our overall budget, so it'd just be useful to have that.

Dale Bryk:
Yeah. And mine's related to that. And I know you guys are working on this, but can you just say a little more about the market transformation thinking behind this? I mean, you mentioned a few things like providing the technical assistance that helps integrate all of this stuff. So it's not just a company, but when we're done with the program, do we just have the 24,000 units? That's it. Or how does it have a larger impact in the marketplace?

Susanne DesRoches:
Yeah, it's a great question. So we understand that housing stock could be a challenging housing stock to work in across the state. And so what we really want to do is we want to get that contractor network more comfortable in that space. And the building owners and the affordable housing provider more comfortable with this level of upgrade. We don't expect after five years to only have done 24,000, that's just what's eligible for the incentive, but we expect that these particular projects can start to grow that comfort level working in this space. So there's a lot of multifamily buildings of state. They're smaller than we see in the city, but there's a big opportunity here to transform that <inaudible> side.

Dale Bryk:
And is this all retrofits?

Susanne DesRoches:
Yeah. It's all retrofitted. Sorry, I should have mentioned that.

Anthony Fiore:
I mean, it's probably obvious, but this is a model that extends beyond New York, right? We've got a lot of other states looking at programs that we do here. I think once we've got some learnings from this, that's something that Susanne's on the Buildings Committee, NASDAQ, that can push that out further.

Charles Bell:
Right. And as these projects are completed, are we publicizing the results to their local communities where they took place?

Susanne DesRoches:
Yes. We're a little ways away from that. We expect the first projects probably will come online potentially by the end of next year, depending on if they're just doing the prescriptive pathway, which is air sealing and appliances, et cetera, we can start to bring that information forward. Absolutely.

Charles Bell:
Great. Thank you.

Susanne DesRoches:
Great. Okay. So let's move on to Empire Tech Thrives. If you could go ahead. There we go. Okay. So this program is really a collaboration between the Clean and Resilient Buildings team and the Innovation team. And what we're doing here is we're connecting large real estate owners with product developers and manufacturers that can lead to scalable solutions. For this program, we created a challenge that brought together heat pump manufacturers with the large real estate owners that we had from the Empire Building Challenge cohorts. And so this was already a trusted group of real estate owners, and we put them together with heat pump manufacturers, and we asked those manufacturers to prototype and commercialize high temperature heat pumps that could drop into existing heating systems in large commercial buildings in New York City. So really targeted scope. You can see there's a picture there showing the top prize winner.

This is MPN boilers. On the right, they had a billion dollar grand prize to support the development of steam and high temperature hot water<inaudible>. So a lot of the buildings here in Manhattan use high temperature, and so there were no products out there to drop in to their existing systems to be able to decarbonize them.

Jay Koh:
Wow.

Susanne DesRoches:
So yeah, it's a great program. Super interesting. And I'll talk about the timeline, which I think is also impressive on the next slide. But before we do that, really, we're looking to use this type of model to do drop in solutions. We have three billion square feet of large existing commercial buildings and multifamily buildings across the state. The least disruptive thing to do is to swap out the heating system rather than changing unit by unit in the case of multifamily to smaller types of electrified heating. And the other piece of this that's really important is that we used our partnerships with the real estate owners to really bring them directly together with these OEMs and talk about what their needs and requirements were, and put those into the challenge that they're getting something immediately from the challenge that they can use in their buildings. To go to the next slide, I want to talk about the timeline of this.

So we kicked this off in 2022. By 2024, we had selected the seven manufacturers, and the following year we had demonstration projects. So for us, that is a very quick turnaround, and this year we expect those demonstration projects to move into construction. While these manufacturers are now out there with these demonstration prototypes, looking for other business activities and really expanding the impact of the program.

Again, talking a little bit about the success factors, these strong partnerships with the real estate industry was key, as well as with the OEMs hearing directly from their needs, what their needs were. This program was really targeted, right? We went after those large commercial companies that have that high temperature system, which really set those manufacturers up with a limited scope that they could focus their engineering on. We did it in particular early enough before

some compliance periods for Local 97that some of those buildings could utilize that to reduce their carbon. And we leveraged the internal strengths of the building team relationship with real estate and innovations team's relationships with the supply chain industry. So all in all, a really successful challenge. Any questions?

Charles Bell:
Any questions?

Jay Koh:
Two comments. Again, it'd be helpful to know what the size of the prides from this really is from our target goals agency-wide, statewide, and what the direct ones and the indirect ones, like you have scalable technology here. Obviously, it'd be useful also if it's some way to track the job creation generated by this kind of outcome. The question is, I don't know if Andrew's somewhere sitting here, but it'd be great to link this to possible financing programs or something along these lines where we can take an integrative approach to really addressing this kind of critical component of CLCPA.

Dale Bryk:
Do you have what's next? It kind of goes to Jay's question like, "You picked this three billion square feet sounds like a lot, but then we also need these other three technologies that don't exist, and this is the next biggest one." I'm really asking literally what's next, but how do you think about what's next?

Susanne DesRoches:
So this model is one that we are utilizing in multiple places. So the Clean Heat for All program just recently announced another challenge for through wall heat pumps. So we can come back and talk about it, but this model of taking the demand of real estate owners or affordable housing owners and bringing them together with manufacturing is one that's starting to be used in many different parts of NYSERDA. It may not be called the Empire Tech Prize, but we are doing it.

Anthony Fiore:
It's a great model to demonstrate to an OEM what the demand is out there, but they will make the investment producing the product.

Susanne DesRoches:
That’s right.

Jay Koh:
Just install VPP into all of it. Kind of not kidding.

Lindsay Greene:
I was just going to add that there's momentum in the new city administration to revisit and make a bigger push on Local 197. Again, there's not a meeting I go into now with the deputy mayor that I don't talk about the clean heat for all challenge and replicating that for the city's needs. And so I think there's appetite to do it. That's great. Particularly when you talk about the commercial properties and hard to electrify.

Susanne DesRoches:
That's great.

Lindsay Greene:
And if anybody wants to try to do it at buildings on the brick and waterfront, I mean ...

Doreen Harris:
Susanne, did you mention all the unit that they had?

Susanne DesRoches:
I didn't. In the last slide, you saw the winter- MPN. MPN. They had the prototype on site at the event and they had it in this mobile trailer so you could go in and they showed where all the puts and takes were throughout the trailer. It was very cool. And then that's being installed in, I believe, three different locations.

Doreen Harris:
Gets lots of attention on the city street.

Susanne DesRoches:
Great. Thank you.

Brandon Owens:
Thanks very much.

Anthony Fiore:
Andrew. Even though you have progress with the green bank and changes.

Andrew Kessler:
Afternoon, everyone.

Charles Bell:
Afternoon.

Andrew Kessler:
I want to go to the next slide, please. Next slide. Terrific. All right, good afternoon everyone. I'm going to provide a brief update of last year's results and then walk through some key initiatives that we're working on this fiscal year and these already highlighted some of them. Last fiscal year, NY Green Bank closed six transactions totaling almost $150 million.

It was our biggest year to date investing in energy storage. We closed $665 million in new investment commitments in that sector. And maybe the last thing to highlight here, which I'll talk about a little bit more further along, is on January 23 of this year, the New York Public Service Commission issued an order setting for renewals and targets for NY Green Bank over the next five year performance period. Switching to the left hand side on a cumulative basis, as you can see, since inception, NY Green Bank has closed close to $3 billion into clean energy projects in New York State utilizing the same $1 billion of capital that was allocated from the PSC 13 years

ago. And that initial billion dollars of capital has led to almost $11 billion of project costs mobilized in New York State across approximately 160 separate investments, benefiting all New Yorkers.

Indeed, 50% of capital committed since January 1st, 2020 has benefited New York State's disadvantaged communities. And then finally, in aggregate projects we've mobilized with our investments are expected to lead to 50 million metric tons of reduction in CO2 equivalents. And that's about the equivalent of keeping 500,000 cars off the road for 24 years. Next slide, please.

As highlights to some of our work, I'll share a bit more on two noteworthy transactions from last year. In September 2025, we closed a $20 million transaction with good carbon to fund over 25 geothermal systems and affordable multifamily housing properties in buffalo. Our loan was partially repaid from the project's anticipated incentives payments. And that's really important because that allowed the borrower to access significant upfront capital to fund the project well in advance of the receipt of these anticipated payments. And then on the bottom there, in December 2025, NY Green Bank contributed $15 million in transaction with Soltage to fund 12 standalone battery energy storage projects located in New York City. Next slide, please.

As mentioned on January 23rd of this year, the PSC issued an order setting forth near Greenbank's priorities and objectives for the next five year performance period. I'll highlight a few key takeaways. The order set forth new sector specific investment targets. I'll talk about those in the next slide. The order also approved NY Green Bank's request to increase our minimum disadvantaged community benefit target, and it also expanded our investment criteria to underscore our commitment to financial market transformation within these communities, within disadvantaged communities and L&I markets. In addition, the order emphasized the importance of effectuating market transformation, not just through our transactional work, but through enhanced knowledge sharing, stakeholder engagement, and technical assistance. And finally, the order directed New York remain to develop new market transformation indicators to better track the impact that we're having across the state. Next slide, please.

Yes. As it relates to our new capital commitment targets in the next five-year performance period, as you can see, 40% of our capital commitments will be directed toward building decarbonization, EE/BE, with half that being applied specifically into affordable housing use cases, and about a quarter of that being applied to energy efficiency and improvements. In addition, 25% of our capital commitments will be directed to energy storage, 15% each to clean transportation and clean energy, and 5% directed to a community lender finance pool that will benefit small community lenders across the state. And importantly, the order provides flexibility to dialogue with staff, public service staff to address market dynamics that may impact these investment targets in any given year. Next slide, please.

Jay Koh:
Can we pause there actually on that allocation question? My question is, I mean, we are the agency of record for adaptation and resilience for the state. You guys have done a lot of analysis on resiliency of your own investments and the potential contribution of investments in the green bank to the resiliency of the energy system and the broader economy. So is anything in the new allocation order, aside from the flexibility to go back and talk to DPS and say, look, this also

should include considerations of ... I mean, energy storage clearly speaks to both decarbonization and to adaptation resilience. There are components of building decarbonization as we've just seen where they could include in those investments, other aspects to enhance resiliency and adaptation. But do you see any flexibility here to direct green bank activity specifically at the kind of financings that will actually support the objectives on the adaptation results?

Andrew Kessler:
Yeah, the short answer is yes, I do, Jay. And look, resiliency and adaptation obviously are applicable in the asset classes that are being directed within the order. And just tomorrow, we're having a teach-in on a new tool that we're adopting, operationalizing, that will help our transactors from a due diligence perspective and to direct our independent engineers that provide us with service as we direct these transactions to come up with ways to diligence, to evaluate enhancement opportunities as it relates to everything and adaptation in the investments that we support. So I'm happy to give more of a briefing on that at some future opportunity. We'll be covering that in the upcoming advisory Board Committee. Great. But great question. Thank you.

Jay Koh:
And then do you consider energy storage and clean energy generations to broad enough categories to include potential financings of upgrades to the grid itself, to transmission distribution, et cetera, other networks?

Andrew Kessler:
Yeah, I do. They weren't included specifically in that sort of terminology, but we do through dialogue that we had with staff. I believe that those would be support. Great. Okay. To put these investment targets into some context, and just to frame the reference on the slide, that's the last bar chart there. That's the 2030 targets. As you can see from this bar chart, which is a representation of our historical portfolio mix over the years, the capital we've been committing has over time been approaching and is quite consistent with our new investment targets. For example, investments in building decarbonization represented only 7% of our portfolio in 2020. And fast forward to 2025, that's now 34% of our portfolio. And remember, our portfolio represents about 60 loans, many of which are legacy transactions. So as they roll off and as we underwrite into investment targets consistent with the order, we're quite confident that over time we will continue to migrate our way towards that final bar chart and the investment targets that we're being directed to follow over that five year four weeks period. Slide, please.

Dale Bryk:
Is this charting your impact report, like those regular reports that you put out?

Andrew Kessler:
Not yet, because the order's landed and our next one's coming up.

Dale Bryk:
But it will.

Andrew Kessler:
We will.

Dale Bryk:
Yeah, that's a good chart.

Andrew Kessler:
In fact, there's going to be a lot of great information coming out of New York. I'll cover that in one more slide. We've got a bunch of great deliverables that I think are going to highlight some ways that we're going to be operationalizing the order. Okay. On this, as we look ahead, NY Green Bank is keen to ensure that we're structured and resourced in a manner that best positions us to achieve our goals and objectives. This year, for example, we stood up two new important teams within our organization. We launched a community development investment team, and that's a group dedicated to making impactful investments in the building sector, including affordable housing. That team had been doing its work within our general investment team. That's a specialized area requiring specialized banking skill sets, and particularly given the emphasis in that sector, we decided to emphasize that by funding an improved to do that.

And then in addition, we launched a business development and innovation team that's focused exclusively on addressing stakeholder feedback and market barriers by developing innovative approaches and financial products and close collaboration with our private sector partners. The feedback we get, which is daily, and in some cases we have convenings and round tables and get even more on a concentrated basis. Having a dedicated team to focus exclusively and not be distracted by transactional or portfolio work, we thought was critical to allow us to continue to really think through the best ways to ensure our capital's gross impacting. Next slide.

Anthony Fiore:
I will just say, Ed, Andrew, that this team also is taking all the feedback, regardless of whether it's financial, it could be regulatory related, it could be programmatic related and to other components of NYSERDA to how do we address these different barriers realistically.

Andrew Kessler:
Yeah. Thank you. That's very important. Okay. As I promised, pursuant to the order, we will be publishing more information about our future work through a number of key filings, and that includes publishing a revised metrics of reporting and evaluation plan, publishing a stakeholder and market engagement plan, issuing an assessment of our community decarbonization fund and the program we launched just over three years ago now, issuing an annual business plan, which will be available this year on June 1st, and publishing a disadvantaged community and LMI finance plan later around mid to late July of this year. So a lot to come, and I think that concludes <inaudible>. I'm happy to take any questions.

Charles Bell:
Any questions for Andrew? Comments?

Jay Koh:
I'm sorry to keep saying the same thing, but I think it's great that we have the summary you have on the first slide of what the contribution that Green Bank's made to the overall strategic goals of the State and particularly in NYSERDA. I think, again, just continuing to provide context about how each of these building blocks gets us closer to the objective. I also think I've served on the

Advisory Committee, the Green Bank for since 2014, and I really believe that we ought to occasionally take a little bit of time to celebrate the wins in that. It's really responded very strongly to the LMI prioritization. I think we'll respond again to the new redirection we have here and is, I think, one of the leading examples of this kind of financing mechanism on the plan. So I encourage you guys to try to integrate as much as possible with all the other innovative programs that we have.

And then if we can count how much we're contributing out of these two objectives to the overall goal, I think it'll illuminate even further how much work's been done. But I just wanted to recognize Andrew, you and your whole team for continuing to work those hard on this program.

Dale Bryk:
Can I just ask a question about thank you for highlighting that Buffalo project with the geothermal? Are those tax credits have not been clawed back unlike some others? So that just seems like a huge opportunity because GroundSource keep them so tough. They're so much better, but the higher upfront costs, it's like a perfect problem for you to just follow.

Andrew Kessler:
It's a great project. I mean, it's fascinating. The use of proceeds is spot on in terms of our targets. The innovation is there in terms of advancing into anticipated incentives and ITC sales. So I really do think we're going to spend some time making sure that we're knowledge sharing and communicating it because we think it's adoptable and replicable across the market. And so that's really part of our mission is to try to modify behavior by the private sector to adopt some of these innovations.

Dale Bryk:
That'd be great.

Charles Bell:
So I just think what you've just shown us is that there's a really high multiplier effect in the activities at the Green Bank and it's a tremendous return on investment for the rate payers. And so I would just really want to encourage us to engage in very active communications to tell this story so that people throughout New York are really aware of the achievements and investments that you're making, and then maybe more stakeholders who come forward to partner with you on a new initiative. So thank you for telling the story to us on the board, and then please tell it vigorously with people of New York. Okay, thank you. Any more questions or comments for Anthony or the team? Okay, Anthony, thank you so much for this report and to all the team members who presented. So no formal action is required on this item.

The last item on the agenda is other business. Is there any other business to come before the Committee? If not, may I please have a motion to adjourn the meeting?

Jay Koh:
So moved.

Charles Bell:
Second. All in favor?

Members of the Committee:
Aye. Aye.

Charles Bell:
The meeting is adjourned.